

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau(43) International Publication Date
7 October 2004 (07.10.2004)

PCT

(10) International Publication Number
WO 2004/085610 A3(51) International Patent Classification:
G01N 33/92 (2006.01)

AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(21) International Application Number:
PCT/US2004/007176

(22) International Filing Date: 10 March 2004 (10.03.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

60/458,733 28 March 2003 (28.03.2003) US
10/606,601 26 June 2003 (26.06.2003) US

(71) Applicant (for all designated States except US): WASHINGTON UNIVERSITY IN ST. LOUIS [US/US]; One Brookings Drive, St. Louis, MO 63130 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): GROSS, Richard, W. [US/US]; 307 Chesterfield Oaks, Chesterfield, MO 63005 (US). HAN, Xianlin [CN/US]; 427 North Polo Drive, Clayton, MO 63105 (US).

(74) Agents: RASCHE, Patrick , W. et al.; Armstrong Teasdale LLP, One Metropolitan Square, Suite 2600, St. Louis, MO 63102 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM,

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, IJ, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

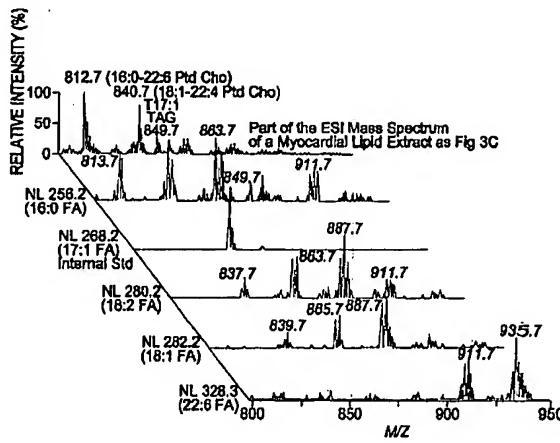
Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the International search report:
30 November 2006

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: MULTIDIMENSIONAL MASS SPECTROMETRY OF SERUM AND CELLULAR LIPIDS DIRECTLY FROM BIOLOGICAL EXTRACTS



(57) Abstract: A method for determination of at least one of the lipid species in a biological sample comprising subjecting the sample to lipid extraction to obtain a lipid extract and subjecting the resulting lipid extract to multidimensional electrospray ionization mass spectrometry using either precursor ion or neutral loss scanning (or both) of all naturally occurring aliphatic chains, lipid fragments and precursor ions leading to observed fragments to generate a multidimensional matrix whose contour densities provides structural and quantitative information directly without chromatography. A method for determination of lipid content and/or lipid molecular species composition and quantity directly from lipid extracts of a biological sample comprising subjecting said lipid extract to electrospray ionization multidimensional mass spectrometry by comparisons to standards and algorithms described herein.

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